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Development of a 'Musical Knowledge Test' for the Sixth Grade Music Lesson of Turkish Primary Education*

İlköğretim Altıncı Sınıf Müzik Dersi İçin Bir 'Müzik Bilgisi Başarı Testi' Geliştirme

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ABSTRACT: As in every lesson, the achievement in music lessons is determined by measurement and assessment procedures. The diversity of the learning outcomes of the music lesson necessitates the multidimensional assessment of student development. Students' learning outcomes regarding musical knowledge and behaviors can be measured through various measurement tools. In this study, it is aimed to develop a multiple-choice *Musical Knowledge Test* for 6th Grade music lesson subjects. In the developing process of the Musical Knowledge Test, firstly the subjects shall be discussed in the test were determined, the learning outcomes were detailed by dividing them into sub-outcomes, and a 25-question multiple-choice questionnaire was created. After obtaining expert opinion for the scope validity, a test draft was prepared and tested by making the necessary arrangements. 220 tests were analyzed using Excel program, after that, five items were excluded from the test. As a result of these corrections and analyzes, 20-item Musical Knowledge Test took its final form. The KR-20 reliability coefficient of the test was 0.77, the mean difficulty value was 0.57, the mean discrimination value was 0.44. The test, which seems valid and reliable, is thought to be an auxiliary and functional tool that music teachers can use.

Keywords: Music lesson, measurement and assessment, 'Musical Knowledge Test'.

ÖZ: Her derste olduğu gibi müzik derslerinde de başarı tayini, ölçme-değerlendirme işlemleri ile yapılmaktadır. Müzik dersinin çeşitlilik içeren kazanımları, öğrenci gelişiminin çok yönlü ölçülüp değerlendirilmesini gerektirmektedir. Öğrencilerin müzik bilgisi içeren kazanımları ve müziksel davranış alanlarındaki kazanımları çeşitli ölçme araçları ile ölçülebilir. Bu çalışmada, ilköğretim 6. sınıf müzik dersi konularına yönelik bir çoktan seçmeli müzik bilgisi başarı testi geliştirmek amaçlanmıştır. *Müzik Bilgisi Başarı Testi* geliştirme sürecinde öncelikle testte ele alınacak konular belirlenmiş, kazanımlar alt kazanımlara ayrılarak detaylandırılmış ve 25 soruluk çoktan seçmeli soru havuzu oluşturulmuştur. Kapsam geçerliği için uzman görüşü alındıktan sonra gerekli düzenlemeler yapılarak test taslağı oluşturulmuştur ve denenmiştir. 220 adet test Excel programı kullanılarak analiz edilmiş, sonuçlara göre beş madde ise testten çıkarılmıştır. Bu düzeltmeler ve analizler sonrasında 20 soruluk *Müzik Bilgisi Başarı Testi* son halini almıştır. Testin KR-20 güvenirlik katsayısı değeri 0.77, ortalama güçlük değeri 0.57, ortalama ayırt edicilik değeri ise 0.44 olarak bulunmuştur. Geçerli ve güvenilir olduğu görülen testin, müzik öğretmenlerinin kullanabilecekleri yardımcı ve işlevsel bir araç olduğu düşünülmektedir.

Anahtar kelimeler: Müzik dersi, ölçme ve değerlendirme, 'Müzik Bilgisi Başarı Testi'.

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In general terms, success is defined as "the positive product of the mental or actual activities of the person depending on his/her abilities and upbringing" (TDK, 2018), and it indicates achievement as well as a satisfactory and desirable outcome (Foulquié, 1994). When viewed from the perspective of education, success is considered to be an indication that individuals can develop according to expectations and realize targeted learning. Although some sources in the literature use the terms 'academic success' and 'academic achievement' interchangeably, the content of academic success is beyond that of academic achievement. The "academic success that is made up of six components: academic achievement, satisfaction, acquisition of skills and competencies, persistence, attainment of learning objectives, and career success" (York, Gibson, & Rankin, 2015, p. 9).

Students' level in achieving the goals defined by the education system and gaining the desired behavior are measured by academic achievement. Academic achievement is a concept which has contents that differ from one another with some variations in literature. It is possible to state that there are two main notions in the definition of this concept and the meaning that has been attributed to the concept of academic achievement has changed according to the basic perspective. The first notion is the approach that does not place the student's knowledge and skill acquisition in its focus separately and points to the general achievement that will be gained from a lesson or program. Academic achievement is explained in the *International Dictionary of Education* as a description of the performance in standard training tests in educational institutions, and, in a more general overview, as the description of the performance of a lesson in the curriculum (Page, Thomas, & Marshall, 1977). In the *Dictionary of Education*, it is defined as the determination of the knowledge or skill levels obtained in the lesson through teacher assessment grades and/or tests in the school (Good, 1973). In the *Family Dictionary of Education Terms*, it is described as "what a student has learned from the teaching in the classroom" (OEO, 2011, p. 10). Demirel (2012) defines the academic achievement as the level of competence of the student in relation to the curriculum objectives as a result of a particular program. According to Silah (2003), student achievement is a concept related to the extent to which the planned activities carried out in the special environments prepared for learning are transformed into action and behavior in the mental, emotional and physical areas by the students in accordance with the goals. Baltaş (2005) defines achievement as reaching the aims that are meaningful for the person through daily programs and step by step. In another definition, academic achievement is described as the student's level of competence of gaining the aimed qualifications at the end of a training program based academic studies arranged on test scores (Shamsuddin, 2007).

The second notion in defining the concept is the approach that considers academic achievement as pure cognitive achievement or competences, keeping it separate from the overall school success or all the competences gained for a lesson. In this context, for example, Ahmann and Marvin (1971) stated that academic achievement "generally refers to behavioral changes in all program areas outside the student's psycho-motor and affective development" (cited in Erdoğdu, 2006, p. 97). Cole (1990), on the other hand, suggests that the concept of achievement changed with time influenced by many factors and it varies according to people's differences, and emphasizes cognitive competence separately. According to this, achievement can be

defined as two main concepts: achievement of skills and facts and achievement of higher-level skills and advanced knowledge.

Academic achievement, regardless of what kind of achievement it involves, is significant in terms of the specific objectives/learning outcomes of the lesson as well as the general objectives of education. The overall achievement of the students in the lessons arranged with the aims of improving the different aspects of the students adequately and arousing their individual potentials determines their school success on the whole. However, when we consider the fact that individuals are equipped with different abilities and competences in terms of cognitive, emotional, psycho-motor, social, and similar, a unidirectional perception of achievement becomes a questionable perspective. In addition, the viewpoint of education in today's world, whether the lessons are mainly cognitive or psycho-motor-based; emphasizes the more holistic support of students from cognitive, affective, psycho-motor or social perspectives (Balay, 2004; Bohl, 2003; MEB, 2018; Peterßen, 2000). Furthermore, in addition to the competence differences of individuals, the fact that some lessons have different types of learning outcome and content rather than a purely cognitive focus requires the orientation of learning areas that are predominantly psycho-motor oriented. For example, by virtue of the fact that achievement is merely measured cognitively in lessons such as Music or Art, which require both natural ability and through education gained qualifications; rather than giving a clue to a branch-specific formation and development, it may not go beyond being an indicator of the results that are important, but -if we approach it from a relative point of view- the ones have peripheral significance for the branch. Therefore, our attitude in our study is more likely to acknowledge the concept of academic achievement as a holistic learning competence or outcome rather than merely to perceive it as a mere cognitive score.

The music lesson consists of lesson processes based on mainly psycho-motor learning outcomes by its nature, but also cognitive, auditory-sensory, affective and social learning outcomes. In the Music Curriculum of Lower Secondary School, which was effectuated in 2018 in Turkey, the expectations from the lesson are various: to enable students to develop their musical perception and knowledge, to participate in different types of singing and listening activities individually and collectively, to express itself through music, to make music in different ways, to improve their aesthetic perception, to development of cognitive skills through music, to acquire musical knowledge and music culture, and to ensure that the students have access to information technologies in music studies (MEB, 2018). It is primarily the duty of the music teachers to fulfill these expectations, which are indicative of the idea of supporting the student in a multi-faceted way. Like every teacher, the music teacher also wants the students to reach the outcomes of the lesson and develop. The most fundamental and central role in achieving this goal is the realization of effective and qualified lesson processes. Moreover, the measurement and assessment of student achievement is of great importance as a complementary phase of this process as well.

Determination of student achievement is possible with 'measurement' and 'assessment' procedures. These two concepts are used together or sometimes interchangeably but with different content. 'Measurement' is the observation of the properties of a variable that are wanted to assess and linking the results with numbers or symbols (Turgut & Baykul, 2011). According to another definition, it is "the process of

determining the amount of a performance or assigning a number to the observed performance" (Kilmen, 2014, p. 30). 'Assessment' is defined as "the process of concluding the results of the measurement by comparing them with a criterion" (Güler, 2015, p. 12). In another definition, it is emphasized that assessment is "a decision-making process on the quality of the student performance" (Kilmen, 2014, p. 30) and that it requires a comparison between the measurement results and the determined criteria. Evaluation, which plays a major role in the teaching-learning process, has a wide variety of functions such as guiding the educational process, reviewing the acquisition status of the originally intended knowledge and skills, evaluating the effectiveness of the teacher and the lesson, measuring student development and providing feedback for student success, offering tips on procedures of selection and supporting or contributing to lesson research (Abel-Struth, 1985; Lohmann, 1982, 1997; Rapp, 1998). As indicated by the definitions and explanations presented here, both measurement and assessment are integral and important parts of the teaching process, informing the teacher and the student about the process.

Measurement and assessment processes include some differences according some variable such as types of school, age and development levels of the students, equipment owned by the teacher and as well as to the branches. An measurement tool that is highly suitable for a particular class for the same age group may not be sufficient in another lesson. In this regard, there are some difficulties in the music lessons in determining the level of change in student behavior and determining achievement, and according to Lohmann (1997, p. 51-52) these difficulties arise from:

> "-The problem of the categorical operationalization in all of the learning objectives/outcomes, especially those of non-cognitive characteristics,
>
> -The deficiencies in the validity and comparability of grade passing grades; the idealization of the school as 'conflict free' and of the music lessons as 'hostile to empiricism' in a controversial manner,
>
> -The fact that the subjective achievement measures in the music lessons continue without any change in spite of the existence of appropriate bio-metric methods due to the deficiencies in teacher training,
>
> -Suspicion against the possibilities of use the science methods in artistic-musical fields, and rejection of the notion of a differential achievement measures in music lessons which are believed 'to be not selective' with the notion of 'average achievement rating'."

The nature of the music lesson requires that student performance should be measured and evaluated in terms of multidimensionality, both in the fields of cognitive, psycho-motor, social and such areas as well as in terms of process and outcome (Lohmann, 1997; Niermann, 2008). Measurement of multiple musical behavior types related to students' singing, playing an instrument, accompaniment, musical transformation, musical creativity and musical knowledge (Kalyoncu, 2005) with one-way perspective and one type of tools would prevent us from achieving realistic and consistent results about their acquisitions. In the Music Curriculum of Lower Secondary School implemented in Turkey (MEB, 2018), the principles that lead to the measurement and evaluation practices have been arranged in order; it has been stated that the curriculum does not put strict limits in terms of measurement tools and methods that can be used in the evaluation process and that it makes guidance, and it has been emphasized that the student's development cannot be evaluated in just one way due to the fact of individual differences. In multi-faceted music lessons, learning outcomes that

include practice such as singing, playing an instrument, musical creativity, perception or musical transformation can be measured through 'observation forms', 'performance tests', 'graded scoring charts', 'peer/partner evaluation' or 'portfolio' etc. to determine the achievement (Gültekin, 2014; Kutlu, Doğan, & Karakaya, 2010; Niermann, 2008; Turgut & Baykul, 2011), and the knowledge oriented learning outcomes can be measured through 'true-false tests', 'short-answer tests', 'paired tests', 'gap-filled tests', 'completed tests' or 'multiple-choice tests' according to the characteristics of the learning objectives and the students' developmental level (Başol, 2018; Güler, 2015; Lohmann, 1982; Meißner, 1987; Turgut & Baykul, 2011).

Studies on the development of cognitive-oriented achievement tests in the field of music education have a long history, and the first examples are belonging to the Anglo-American cultural environment (Jordan, 2014; Knigge, 2011). Achievement tests, that have their roots in the initiatives at the beginning of the 20th century, are developed only for music lessons dependent on a curriculum (Colwell, 2019; Gembris, 1998), unlike other tests such as 'musical ability', 'performance', 'musical preference', 'musical taste', 'judgment' and 'attitude' (Füller, 1974; Knigge, 2011) used in the field of music. Musical achievement tests generally aim to measure knowledge regarding Music Theory, Music History, Notation etc., skills based on auditory perception or knowledge regarding musical composition (Knigge, 2011). One of the earliest known examples of musical achievement tests is the *Beach Music Test*, developed to measure some auditory competences as well as music knowledge (Colwell, 2019). William E. Knuth's *Achievement Tests in Music* was first published in 1936 and then revised in 1966. The basic procedure which should be done in this 40-question test, which contains melodic-rhythmic structures is to listen carefully to the music sentences given and to mark the differences in the notation (Colwell, 1963; Weymuth, 1986).

From the middle of the 20th century, both the number of musical achievement tests increased and they were recognized in other countries. One of the tests of the mid-century period is *The Aliferis Music Achievement Test* developed by James Aliferis to measure musical components. The purpose of this multiple-choice test is to measure three basic skills consist of melody, harmony and rhythm that good musicians should have. In this test containing of 64 questions, there are six chapters consisting of 'Melodic Elements-Melodic Style', 'Harmonic Elements-Harmonic Style', 'Rhythmic Elements-Rhythmic Style'. An average of 40 minutes of testing can be carried out using a recording device or by playing the piano (Kraehenbuehl, 1957; Weymuth, 1986). Swinchoski (1965), in his study, aimed to develop a test that is able to illustrate the various activities in the music curriculum and to be able to distinguish between high or low achievement students in music. He developed a *Music Achievement Test Battery* that consists chapters of 'Rhythmic Activities', 'Listening Activities', 'Musical Reading' and 'Creative Activities' and that measures musical knowledge and practice in an integrated way. Another example is *The Music Achievement Tests*, a four-level test series developed by Richard Colwell. The purpose of these tests, which are called MATs in short, is to determine how much the student has earned from past teaching, the quality of the lesson and how much the students will gain from future lessons (Weymuth, 1986). "MAT is an aural test, for music is aural as an art, skill, and activity" (Colwell, 1970, p. 62). Another example that deserves to be mentioned here is the tests that Edwin E. Gordon developed and applied in a wide range of countries. Gordon's

Iowa Tests of Music Literacy (ITML) is the only nationally standardized music achievement test series published in the United States. These six-grade tests, intended to measure tonal and rhythmic auditory perception, musical literacy ability, and understanding/comprehending of notation, are designed to continually assess students' progress in music, to identify their strengths and weaknesses in music achievement, and to compare their relative stance in musical achievement (Gordon, 2001).

Achievement test development studies for Music lessons were conducted also in Turkey. Kocabaş (1995), in her study, developed and used the *Musical Field Knowledge Test* to determine the effects of Cooperative Learning on music learning strategies. Tunalıoğlu (2004) developed a *Musical Knowledge Test*, and determined the effects of regular vocal and instrumental education practices in the second phase of primary education music lessons using this test. Nacakcı (2006) used the *Cognitive Success Test*, which he developed in order to determine the effect of the learning model prepared for 7th Grade Music lesson based on the Theory of Multiple Intelligences on students' musical learning levels. One of the measurement tools that Şen (2011) used in his study which compared the Programmed Learning with traditional teaching methods in 7th Grade Music lessons is the *Achievement Test*. Güven (2011) used the *Music Lesson Achievement Test* to measure the students' musical learning levels in the music lessons conducted with the Cooperative Learning in the lower secondary schools in which the application of Inclusion was carried out. Varış and Cesur (2012), in their study, developed an *Achievement Test*, which is used to measure basic music knowledge targeted at upper secondary school Music lesson. Gök (2012) developed and used the *Academic Achievement Test* in order to determine the effect of 5E model on the students' musical learning levels in the 7th grade Music lessons. In another study, Akgül (2013) used the *Music Lesson Achievement Test* to determine the effect of instrumental accompany practices on the Music lesson achievement of the 6th grade students. Yegül (2014) developed an *Academic Achievement Test* to measure the knowledge level of the music teacher candidates about Constructivist Learning.

As we have seen in the given examples, many different types of tests have been developed for use in music lessons. 'Multiple-choice tests', which are predominant among them, are used not only in music lessons but also in different branches in various education levels to measure achievement. Common causes of the using of this test type are the possibility of ask many questions in short time periods, apply in large groups, make easy scoring and provide a more objective point of view in evaluating student achievement. Multiple-choice tests can be adapted to different situations, ranging from simple recalling of the knowledge earned to analysis, from adapting the principles to new situations to interpreting tables and graphs, from dedicating from data to interpreting cause-effect relationships (Burton, Sudweeks, Merrill, & Wood, 1991). As these tests are among the most preferred measurement tools, there are many studies in the literature in order to develop multiple-choice achievement tests that measure cognitive achievement for different education levels and different branches. As examples, studies on development of multiple-choice achievement tests in the fields of science (Akbulut & Çepni, 2013; Başer, 1996; Demir, Kızılay, & Bektaş, 2016; Gönen, Kocakaya, & Kocakaya, 2011; Güngörmez & Akgün, 2018; Jayanthi, 2014; Öngören, 2007; Özkan & Muştu, 2018; Singh & Rosengrant, 2003; Şen & Eryılmaz, 2011; Şener & Taş, 2017), mathematics (Duru, 2007; Fidan, 2013; İncebacak & Ersoy, 2017), social

studies (Osadebe & Jessa, 2018; Şan & İbrahimoğlu, 2017) and Turkish language (Belet, 2005) can be given.

Achievement tests are developed for lessons in relation to the curriculum, therefore they are not tools used in very long periods without any change. As the curricula and the learning fields in curricula change, the tests that teachers can use in lessons are developed/redeveloped or the existing tests can be adapted for the needs in learning-teaching situations. For this reason, it is thought that the tests developed in accordance with the learning fields of the Music courses will be among the tools that can contribute to teachers in the evaluation processes as a concrete material. In this context, the aim of this study is to develop a multiple-choice *Musical Knowledge Test*, which can be used to measure the musical knowledge of 6th Grade students in the learning field of 'Musical Perception and Knowledge' in Turkish curriculum.

In the study, we started out from the familiar approach of Plößl and Füller for the development of tests for music lessons. According to this, the test development process consists of the main steps such as the operationalization of the objectives/learning outcomes selected from the curriculum, defining the duties of the teacher in the lesson process, the teaching-learning process and the implementation of the tests (Abel-Struth, 1985; Füller, 1974; Plößl, 1983). In this context, the test was developed based on the analysis of the learning outcomes in the related learning field, and the process of obtaining the test is presented in the next section based on the test development stages of Grotjahn (2000).

Development Process of 'Musical Knowledge Test'

Preparation of the Test Draft

In the preparation stage of the test, first of all, the topics in the learning field 'Musical Perception and Knowledge' of the 6th Grade Music Lesson were examined. The learning contents included in the test were selected to be limited in order to ensure that the number of questions was reasonable and that the students would not have any problems in the response process. The selected contents were divided into sub-themes (learning units). The learning contents/subjects[1] which were decided to include of the test are as follows:

1. Dotted Rhythm[2]
2. Tie
3. Let's Dance with Different Rhythms (6/8 Compound Measure)
4. Let's Dance with Different Rhythms (5/8 Asymmetric Measure)
5. How Does My Voice Occur?
6. I'm Growing

[1] This test was prepared for the 6th Grade based on the learning contents of the 2007 Music Curriculum of Primary Education, which consist of Elementary School (Grades 1-4) and Lower Secondary School (Grades 5-8). The Music Curriculum of Lower Secondary School was revised in 2018 (MEB, 2018). Five of the learning contents selected for this test were included in the revised curriculum again under the 6th Grade subjects, and only the subject 'Dot / Dotted Rhythm' was transferred to the contents of 7th Grade Music Lesson (MEB, 2007, 2018).

[2]Although this term is called in the curriculum the "Increase Dot" (MEB, 2007, p. 55), but the concept was called in the Music Theory literature as "Extension Point" (Gurlitt & Eggebrecht, 1996, p. 759; Kocabaş, 2003, p. 2; Michels, 2001, p. 66; Özgür & Aydoğan, 1999, p. 117) or "Dotted Rhythm" (Apel, 2000, p. 243; Breslauer, 1988, p.14; McPherson, 2019, p. 588).

Subsequently, the learning outcomes in the music lesson curriculum, which include more general expressions, have been detailed and divided (operationalized) into measurable sub-outcomes by researchers (see Table 1). These detailed learning objectives are guiding the Musical Knowledge Test.

Table 1

Learning Contents, Learning Outcomes and Sub-Outcomes of the 6th Grade Learning Field 'Musical Perception and Knowledge'

Learning Contents	Learning Outcomes	Sub-Outcomes
1. Dotted Rhythm	Uses basic music notation and elements.	1. Expresses that the point placed on the right of the note is the Dotted Rhythm. 2. Expresses that the extension point has a value of half that of the note. 3. Beats up simple rhythm patterns containing the dotted time values. 4. Writes simple rhythm patterns containing dotted time values.
2. Tie		1. Indicates that the sign connecting the two notes with the same name is the tie. 2. Expresses that the tie extend the time of the first note by placing their names and sounds under or above the same notes. 3. Beats up simple rhythm patterns containing tie note time values. 4. Writes simple rhythm patterns containing tie note time values.
3. Let's Dance with Different Rhythms *(6/8 compound measure)*	Uses basic music notation and elements.	1. Explains the structure of 6/8 compound measure. 2. Selects a 6/8 compound measure from the given different measures. 3. S/he performs songs and other music in 6/8 measure. 4. Accompanies to music in 6/8 measure with appropriate movements. 5. Forms rhythmic phrases in 6/8 measure.
4. Let's Dance with Different Rhythms *(5/8 asymmetric measure)*	Uses basic music notation and elements.	1. Explains the structure of 5/8 asymmetric measure. 2. Selects a 5/8 asymmetric measure from the given different measures. 3. S/he performs songs and other music in 5/8 measure. 4. Accompanies to music in 5/8 measure with appropriate movements. 5. Forms rhythmic phrases in 5/8 measure.
5. How Does My Voice Occur?	Explains how the human voice is formed, its use in music and the importance of the voice-breathing elements.	1. Tells how the human voice is formed. 2. Explains the importance of sound and breath elements in speech and singing. 3. Uses voice and breathe correctly when sings the learned songs. 4. Breathes in the right places when sings the learned songs.

6. I am Growing	Recognizes the characteristics of breaking of the voice (mutation) in adolescence.	1. Explains how the voice is affected by changes in adolescence. 2. Tells what ages contain the period of voice breaking is between. 3. Expresses the change in the voices of boys and girls in the period of breaking of the voice (mutation). 4. Knows that the vocal cords are sensitive during breaking of the voice (mutation), and expresses the ways to protect the voice health.

Based on these learning outcomes and sub-outcomes, a 25-question multiple-choice questionnaire was created. Expert opinion[1] was taken for the scope validity of the questions, and necessary corrections were made in accordance with the feedback received, and a draft *Musical Knowledge Test* was prepared for use in the trial application.

Application of the Test Draft

After the necessary permissions[2] were obtained for the application of the *Musical Knowledge Test*, the test draft was applied to students of five lower secondary schools in the Black Sea Region in Turkey during the 2010-2011 Academic Year Fall Semester. The test draft was applied to a total of 261 students, who studied the selected learning contents in the music classes in the previous academic year/years, who were currently studying in the seventh and eighth grades. Schools visited by students are located in the city center. The students' musical learning is almost limited to music lessons at school. There are few students, who receive instrument training outside of school, but their lessons are not regularly and contained not high-level skills. Therefore, the scorings the students acquired in the applied tests are due to the school music lessons. During the implementation of the test, the first author was personally present to the students and provided the necessary support for the ununderstanding points. 41 of the tests completed by the students were considered invalid because of inappropriate marking, and the remaining 220 tests were used for the validity and reliability analysis.

Analysis of Data obtained from Application

The items in the test were analyzed using the Excel program. "Item analysis is the computation and examination of any statistical property of an item response distribution" (Crocker & Algina, 2008, p. 335). The difficulty of a test item is the ratio of the number of correct responders to the total number of students in the practice (Tekin, 2000; Turgut & Baykul, 2011). The discrimination function (substance validity) of a test substance relates to the extent to which the substance is able to distinguish between those accessing the related outcome and those who do not (ibid.; ibid.). This analysis program shows the discrimination and difficulty levels of the substances, but also gives the average statistical values.

[1]We would like to thank Prof. Dr. Ali UÇAN, who contributed to the study by examining the test draft and giving feedbacks.

[2]Research permission of the relevant Provincial Directorate of National Education in the Black Sea Region/Turkey, dated 24 November 2010, numbered B.08.4.MEM.4.14.00.02.121/19397.

As a result of the analysis, the KR-20 reliability coefficient value was found to be 0.76, the mean difficulty index value was 0.56, and the mean discrimination value was 0.54. After examining the values of each items one by one, questions 11, 13, 17, 21 and 23 were excluded from the test because the difficulty and discrimination index values were not sufficient (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2011). As a result of the analysis made once again, the KR-20 reliability coefficient value was found to be 0.77, the mean difficulty index value was 0.57, and the mean discriminant value was 0.44 (see Table 2).

Table 2

Difficulty and discrimination index values of the Musical Knowledge Test items

Item No	Difficulty value *(p)*	Discrimination value *(d)*
1	.65	.64
2	.64	.58
3	.72	.58
4	.53	.36
5	.33	.24
6	.41	.46
7	.46	.43
8	.38	.39
9	.85	.50
10	.58	.39
11	.85	.43
12	.71	.42
13	.47	.44
14	.38	.46
15	.41	.38
16	.32	.45
17	.30	.35
18	.87	.42
19	.79	.43
20	.74	.35
KR-20: 0.77	*Mean:* 0.57	*Mean:* 0.44

Final Form of the 'Musical Knowledge Test'

As a result of the item removal, reorganization, correction and analysis, the 20-item *Musical Knowledge Test* has been finalized (see Appendix 1). The distribution of the questions in the test according to the topics in the learning field 'Musical Perception and Knowledge' are as follows: 1., 2., 3. and 4. questions *Dotted Rhythm*; 5., 6., 7. and 8. questions *Tie*; 9., 10. and 11. questions *How Does My Voice Occur?*; 12, 13 and 14.

questions *Let's Dance with Different Rhythms (6/8)*; 15., 16. and 17. questions *Let's Dance with Different Rhythms (5/8)*; 18., 19. and 20. questions *I am Growing*.

Musical Knowledge Test is evaluated over 100 points. Teachers can determine the achievement score by multiplying the number of correct answers given by the students by the coefficient 5.

Conclusion and Discussion

As a result of this study, a multiple-choice *Musical Knowledge Test* consisting of 20 questions has been developed, which can be used to measure the knowledge-oriented achievement of the students in the learning contents within the learning field 'Musical Perception and Knowledge' of the 6th Grade Music Lesson. The KR-20 reliability coefficient value of the test was calculated as 0.77, the mean difficulty index value was 0.57, and the mean discrimination value was 0.44. Since the majority of Turkish tests available cover different grades of Music lessons, and there is not high number of tests for 6th Grade, this test can contribute to measurement tools for this class. Also, the few tests developed for the 6th Grade are also extensive, therefore the proposed test can be a helpful tool that teachers can use in a short period during the lesson. However, this test represents only one of the various measuring tools that can be used in the course. When used in conjunction with other measurement instruments to enable students to participate interactively, a one-way assessment can be avoided.

Although, for music teachers, measuring the learning products, in other words whether the learning outcomes have taken place in their lessons, in different ways and implementing their ideas on this issue is possible with knowing the assessment and evaluation tools well and integrating them into the music lessons, this may not always be achieved in the desired way. One of the main reasons for this is the duration of music lessons in the weekly school program as frequently mentioned in the literature (Kılıç, 2009; Meißner, 1987; Nacakcı, 2006; Öztürk, 2006; Sualp, 2002; Tanyeli, 2007; Türkmen, 2009). The fact that music lessons in Lower Secondary School are one lesson per week can limit the teachers' ability to develop and use different assessment and evaluation tools. Another reason is that the teachers have not recognized the various approaches and methods of measurement end assessment for the evaluation within the teacher trainings process and in-service period (Lohmann, 1997). In this context; ready-made concrete measurement tools like multiple-choice achievement tests are among the useful tools that can be functional to music teachers.

Multiple-choice tests are economic and logical choices when it comes knowledge and measurement of many cognitive skills. While some learning products are directly observable, multiple-choice tests play a role that we can define functionally the areas of knowledge and skill, especially if skills are cognitive (Haladyna, 2004). The advantages of such achievement tests in music lessons are not limited to this. The such features as; compliance with crowded classes; usefulness; avoiding evaluation based solely on the subjective perspective of the teacher; testing each student under the same conditions; being comparable; the ability to be easily applied and relatively easy to score without the need for special skills; objectivity and reliability of results; the time-consuming economy etc. (Gembris, 1998; Lohmann, 1982, 1997; Roediger & Mash, 2005) support the use of these tests in music lessons.

These tests undoubtedly have disadvantages, too. The such expressions are frequently emphasized negativity; the preparation of the test is difficult and takes a long time; limited to cognitive domain; less favorable in measuring behavior above the level of knowledge; not develop written expression; the possibility that the correct answer is found with luck; the fact that the different structures of the learning types are not sufficiently measured in this format etc. (Klufa, 2015; Lohmann, 1997; Roediger & Mash, 2005; Tekindal, 2014; Turgut & Baykul, 2011). Although such criticisms are brought, it is emphasized that multiple-choice tests play a vital role in measuring many important aspects of most structures (Haladyna, 2004). At this issue, it is important to act with the awareness that "a single test should not be the starting or finishing [result indicator] point of a lesson" (Lohmann, 1982, p. 258), and to make those measuring instruments useful for a lesson by using them at the appropriate time and contents.

The *Musical Knowledge Test* obtained in this research will provide information only about students' cognitive acquisitions in the learning field of 'Musical Perception and Knowledge', in other words it will serve as a cross-sectional measurement process. Therefore, it is recommended to use the test upon need alone or together with the other measuring instruments that can also measure students' auditory-sensory, psycho-motor, social and similar learning output. It is thought that the test will be a beneficial tool in determining the students' achievement or in defining the learning deficiencies by informing the students regarding the results. As it is known, it is aimed that individuals gain general music skills, music knowledge and music appreciation etc. in general school music education. For this reason, it is suggested and recommended in current music curriculum that music teachers will act with the utmost diversity and flexibility in assessment and evaluation processes (MEB, 2018).

Statement of Responsibility

Özlem Öztürk; conceptualisation, design of research process, the methods, investigation, data curation, writing, reviewing & editing, and visualisation. Nesrin Kalyoncu; conceptualization, design of research process, the methods, writing-reviewing & editing, and supervision.

References

Abel-Struth, S. (1985). *Grundriss der musikpädagogik*. Mainz: Schott.

Akbulut, H. İ., & Çepni, S. (2013). Bir üniteye yönelik başarı testi nasıl geliştirilir? İlköğretim 7. sınıf kuvvet ve hareket ünitesi. *Amasya Üniversitesi Eğitim Fakültesi Dergisi, 2*(1), 8-44.

Akgül, A. (2013). *Enstrüman eşlikli uygulamaların ilköğretim 6. sınıf öğrencilerinin müzik dersine yönelik başarı ve tutumlarına etkisi* (Yayımlanmamış doktora tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Apel, W. (2000). *Harward dictionary of music* (2nd ed.). Cambridge: The Belknap Press of Harward University Press.

Balay, R. (2004). Küreselleşme, bilgi toplumu ve eğitim. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 37*(2), 61-82.

Baltaş, A. (2005). *Öğrenme ve sınavlarda üstün başarı* (22. baskı). İstanbul: Remzi Kitabevi.

Başer, N. (1996). *Ders geçme ve kredi sisteminde lise öğrencileri için bir matematik başarı testi tasarımı ve uygulanabilirliğinin araştırılması* (Yayımlanmamış doktora tezi). Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.

Başol, G. (2018). *Eğitimde ölçme ve değerlendirme* (5. baskı). Ankara: Pegem Akademi.

Belet, D. (2005). *Öğrenme stratejilerinin okuduğunu anlama ve yazma becerileri ile Türkçe dersine ilişkin tutumlara etkisi* (Yayımlanmamış doktora tezi). Anadolu Üniversitesi, Eğitim Bilimleri Enstitüsü, Eskişehir.

Bohl, T. (2003). Neuer unterricht-neue leistungsbewertung. Grundlagen und kontextbedingungen eines veränderten bewertungsverständnisses. In O. Vorndran & D. Schnoor (Eds.), *Schulen für die wissensgesellschaft. Ergebnisse des netzwerkes medienschulen* (pp. 211-231). Gütersloh: Verlag Bertelmann Stiftung.

Breslauer, P. (1988). Diminutional rhythm and melodic structure. *Journal of Music Theory, 32*(1), 1-21.

Burton, S. J., Sudweeks, R. E., Merrill, P. F., & Wood, B. (1991). *How to prepare better multiple-choice test items: Guidelines for university faculty*. Retrieved from https://sites.educ.ualberta.ca/staff/ldelia/How-to-prp-MC-Tests=UK'University.pdf

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2011) *Bilimsel araştırma yöntemleri* (10. baskı). Ankara: Pegem Akademi.

Cole, N. S. (1990). Conceptions of educational achievement. *Educational Researcher, 19*(3), 2-7.

Colwell, R. (1963). An investigation of musical achievement among vocal students, vocal-instrumental students, and instrumental students. *Journal of Research in Music Education, 11*(2), 123-130.

Colwell, R. (1970). The development of the music achievement test series. *Bulletin of the Council for Research in Music Education, 20,* 57-73.

Colwell, R. (2019). An overview of music tests and their uses. In T. S. Brophy (Ed.), *The Oxford handbook of assessment policy and practice in music education* (pp. 537-574). New York: Oxford University Press.

Crocker, L., & Algina, J. (2008). *Introduction to classical and modern test theory*. Ohio: Cengage Learning.

Demir, N., Kızılay, E., & Bektaş, O. (2016). 7. Sınıf çözeltiler konusunda başarı testi geliştirme: Geçerlik ve güvenirlik çalışması. *Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi (EFMED), 10*(1), 209-237. https://doi.org/10.17522/nefefmed.52947

Demirel, Ö. (2012). *Eğitim sözlüğü* (5. baskı). Ankara: Pegem Akademi.

Duru, E. D. (2007). *Oluşturmacı yaklaşıma göre tasarlanmış bir ders paketinin uygulanmasıyla ulaşılan başarının geliştirilen başarı testi ile değerlendirilmesi* (Yayımlanmamış yüksek lisans tezi). Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.

Erdoğdu, Y. (2006). Yaratıcılık ile öğretmen davranışları ve akademik başarı arasındaki ilişkiler. *Elektronik Sosyal Bilimler Dergisi, 5*(17), 95-106.

Fidan, E. (2013). *İlkokul öğrencileri için matematik dersi sayılar öğrenme alanında başarı testi geliştirilmesi* (Yayımlanmamış yüksek lisans tezi). Ankara Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Foulquié, P. (1994). *Pedagoji sözlüğü* (Çev. C. Karakaya). İstanbul: Sosyal Yayınlar.

Füller, K. (1974). *Standardisierte musikalitätstests.* Frankfurt: Diesterweg.

Gembris, H. (1998). *Grundlagen musikalischer begabung und entwicklung*. Augsburg: Wiβner.

Good, C. V. (1973). *Dictionary of education* (3rd ed.). USA: McGraw-Hill Book Company.

Gordon, E. E. (2001). *Music aptitude and related tests: An introduction*. Chicago: GIA.

Gök, M. (2012). *Müzik eğitiminde 5E modeli'nin akademik başarı, tutum ve kalıcılığa etkisi* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Gönen, S., Kocakaya, S., & Kocakaya, F. (2011). Dinamik konusunda geçerliliği ve güvenilirliği sağlanmış bir başarı testi geliştirme çalışması. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 8*(1), 40-57.

Grotjahn, R. (2000). Sprachlehrforschung. In M. Byram (Ed.), *Routledge Encyclopedia of Language Teaching and Learning* (1st ed.) (pp. 569-572). London: Routledge.

Gurlitt, W., & Eggebrecht, H. H. (1996). *Riemann sachlexikon musik* (12th ed.). Mainz: Schott Musik.

Güler, N. (2015). *Eğitimde ölçme ve değerlendirme* (5. baskı). Ankara: Pegem Akademi.

Gültekin, S. (2014). Performans dayanaklı değerlendirme. R. N. Demirtaşlı (Ed.) *Eğitimde Ölçme ve Değerlendirme* (3. baskı) içinde (ss. 241-274). Ankara: Edge Akademi Yayınları.

Güngörmez, H. G., & Akgün, A. (2018). Ortaokul öğrencilerinin fen bilimleri dersindeki kuvvet ve enerji ünitesine yönelik akademik başarı testi geliştirme çalışması. *Diyalektolog Ulusal Sosyal Bilimler Dergisi, 18*, 85-99.

Güven, E. (2011). *Kaynaştırma uygulamasının yapıldığı sınıflarda işbirlikli öğrenmenin müzik öğretimi üzerindeki etkileri* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Haladyna, T. M. (2004). *Developing and validating multiple-choice test items* (3rd ed.) New Jersey: Lawrence Erlbaum Associates Publishers.

İncebacak, B. B., & Ersoy, E. (2017). Developing an achievement test for fraction teaching: Validity and reliability analysis. *2nd International Conference on Computational Mathematics and Engineering Sciences*, 1-14.

Jayanthi, J. (2014). Development and validation of an achievement test in mathematics. *International Journal of Mathematics and Statistics Invention, 2*(4), 40-46.

Jordan, A.-K. (2014). *Empirische validierung eines kompetenzmodells für das fach musik.* Münster, New York: Waxmann.

Kalyoncu, N. (2005). Eğitim fakültelerinde uygulanan müzik öğretmenliği lisans programının revizyon gerekçeleriyle tutarlılığı. *Gazi Eğitim Fakültesi Dergisi, 25*(3), 207-220.

Kılıç, I. (2009). İlköğretim okullarındaki müzik derslerinde karşılaşılan araç-gereç sorunu. S. Tarman (Ed.), *8. Ulusal Müzik Eğitimi Sempozyumu Bildiriler Kitabı* (ss. 314-327). Samsun: Ondokuz Mayıs Üniversitesi Yayınları.

Kilmen, S. (2014). Ölçme ve değerlendirmede temel kavramlar. R. N. Demirtaşlı (Ed.), *Eğitimde Ölçme ve Değerlendirme* (3. baskı) içinde (ss. 30-64). Ankara: Edge Akademi Yayınları.

Klufa, J. (2015). Multiple choice question tests-advantages and disadvantages mathematics and computers in sciences and industry. *Proceedings of the 2nd International Conference on Mathematical Sciences and Computer Engineering*, 91-94.

Knigge, J. (2011). *Modellbasierte entwicklung und analyse von testaufgaben zur erfassung der kompetenz 'musik wahrnehmen und kontextualisieren'*. Berlin: LIT Verlag.

Kocabaş, A. (1995). *İşbirlikli öğrenmenin blokflüt öğretimi ve öğrenme stratejileri üzerine etkileri* (Yayımlanmamış doktora tezi). Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.

Kocabaş, A. (2003). *Müzik öğretiminin temelleri* (2. baskı). İzmir: Egetan Basım.

Kraehenbuehl, D. (1957). Re: The Aliferis music achievement tests. *Journal of Music Theory, 1*(2), 208-211.

Kutlu, Ö., Doğan, C. D., & Karakaya, İ. (2010). *Öğrenci başarısının belirlenmesi* (3. baskı). Ankara: Pegem Akademi.

Lohmann, W. (1982). Diagnostische und didaktisch-methodische funktion von tests im unterricht. In K.-E. Behne (Ed.), *Gefühl als erlebnis-ausdruck als sinn* (pp. 250-269). Laaber: Laaber Verlag.

Lohmann, W. (1997). Leistungserfassung-leistungsbeurteilung/leistungsbewertung. In S. Helms, R. Schneider & R. Weber (Eds.), *Handbuch des musikunterrichts. B. 2: Sekundarstufe I.* (pp. 49-55). Kassel: Gustav Bosse Verlag.

McPherson, G. E. (2019). Developing tests of music performance improvisation. In T. S. Brophy (Ed.), *The Oxford handbook of assessment policy and practice in music education* (pp. 575-606). New York: Oxford University Press.

Meißner, R. (1987). Informelle tests: Die bewertung der schülerleistung. In H. de la Motte-Haber (Ed.), *Handbuch der musikpädagogik. B.4: Psychologische grundlagen des musiklernens* (pp. 431-469). Kassel: Bärenreiter.

Michels, U. (2001). *Dtv-Atlas musik.* München: Deutscher Taschenbuch Verlag.

Millî Eğitim Bakanlığı [MEB] (2007). *İlköğretim müzik dersi öğretim programı.* Ankara: MEB Yayınları.

Millî Eğitim Bakanlığı [MEB] (2018). *Müzik dersi öğretim programı (İlkokul ve ortaokul)*. Ankara: MEB Yayınları.

Nacakcı, Z. (2006). *Çoklu zeka kuramı dayanaklı ders işleme modelinin ilköğretim 7. sınıf müzik dersinde öğrencilerin müziksel öğrenme düzeylerine etkisi* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Niermann, F. (2008). Leistungen gehören kommuniziert. In H.-U. Schäfer-Lembeck (Ed.), *Leistung im musikunterricht. Beiträge der münchner tagung* (pp. 15-31). München: Allitera Verlag.

Office of the Education Ombudsman [OEO] (2011). *Family dictionary of education terms* (2nd ed.). Retrieved from https://www.digitalarchives.wa.gov/governorgregoire/oeo/publications/dictionary.pdf.

Osadebe, P. U., & Jessa, M. O. (2018). Development of social studies achievement test for assessment of secondary school students. *European Journal of Open Education and E-learning Studies, 3*(1), 104-124. Doi: 0.5281/zenodo.1302023.

Öngören, H. (2007). *İlköğretim yedinci sınıf fen bilgisi dersi kuvvet, hareket ve enerji ünitesinde çoklu zeka kuramı tabanlı öğretimin öğrenci başarısı ve tutumları üzerindeki etkileri* (Yayımlanmamış yüksek lisans tezi). Pamukkale Üniversitesi, Fen Bilimleri Enstitüsü, Denizli.

Özgür, Ü., & Aydoğan, S. (1999). *Müziksel işitme okuma (1. kitap)*. Ankara: Sözkesen Matbaası.

Özkan, E. B., & Muştu, Ö. E. (2018). 8. Sınıf basit makineler ünitesine yönelik başarı testi geliştirme: Geçerlik ve güvenirlik çalışması. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 11*(1), 737-754. http://dx.doi.org/10.17218/hititsosbil.332294.

Öztürk, E. (2006). *İlköğretim okullarındaki ikinci kademe müzik eğitimi ve sorunları* (Yayımlanmamış yüksek lisans tezi). Afyon Kocatepe Üniversitesi, Sosyal Bilimler Enstitüsü, Afyon.

Page, G. T., Thomas, J. B., & Marshall, A. R. (1977). *International dictionary of education.* London: Nichols Publishing Company.

Peterßen, W. H. (2000). *Handbuch unterrichtsplanung* (9th ed.). Oldenbourg: Schulbuchverlag.

Plößl, W. (1983). *Lernziele-lernerfahrungen-leistungsmessung. Aspekte einer effektiven unterrichtsgestaltung.* Augsburg: Auer Verlag.

Rapp, G. (1998). *Messung und evaluierung von lernergebnissen in der schule*. Bad Heilbrunn: Klinkhardt.

Roediger, H. L., & Mash, E. J. (2005). The positive and negative consequences of multiple-choice testing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 31*(5), 1155-1159. http://dx.doi.org/10.1037/0278-7393.31.5.1155.

Shamsuddin, S. (2007). *Values and academic achievement.* New Delhi: Discovery Publishing House.

Silah, M. (2003). Üniversite öğrencilerinin akademik başarılarını etkileyen çeşitli nedenler arasından süreksiz durumluk kaygısının yeri ve önemi. *Eğitim Araştırmaları Dergisi, 10*, 102-115.

Singh, C., & Rosengrant, D. (2003). Multiple-choice test of energy and momentum concepts. *American Journal of Physics, 71*(6), 607-617.

Sualp, B. G. (2002). *İlköğretim okulları üçüncü devre müzik programının uygulamasında karşılaşılan sorunlar* (Yayımlanmamış yüksek lisans tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Swinchoski, A. A. (1965). A standardized music achievement test battery for the intermediate grades. *Journal of Research in Music Education, 13*(3), 159-168.

Şan, S., & İbrahimoğlu, Z. (2017). Sosyal bilgiler dersinde öğrenci merkezli etkinlik kullanımının öğrencilerin akademik başarısına etkisi ve bu etkinliklere yönelik öğrenci görüşleri. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 17*(4), 2142-2159.

Şen, H. C., & Eryılmaz, A. (2011). Bir başarı testi geliştirme çalışması: Basit elektrik devreleri başarı testi geçerlik ve güvenirlik araştırması. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 8*(1), 1-39.

Şen, Ü. S. (2011). *Müzik öğretiminde bilgisayar destekli programlı öğretim yönteminin etkililiği* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Şener, N., & Taş, E. (2017). Developing achievement test: A research for assessment of 5th grade biology subject. *Journal of Education and Learning, 6*(2), 254-271. http://dx.doi.org/10.5539/jel.v6n2p254.

Tanyeli, D. (2007). *İlköğretim okullarında görev yapan müzik öğretmenlerinin müzik derslerinde karşılaştıkları sorunlar ve nedenlerine ilişkin görüşleri (Güneydoğu Anadolu Bölgesi örneği) (*Yayımlanmamış yüksek lisans tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Tekin, H. (2000). *Eğitimde ölçme ve değerlendirme* (26. baskı). Ankara: Yargı Yayınevi.

Tekindal, S. (2014). *Okullarda ölçme ve değerlendirme yöntemleri* (4. baskı). Ankara: Nobel Akademik Yayıncılık.

Tunalıoğlu, Ş. (2004). *İlköğretim okullarının ikinci kademe (6. 7. 8.) sınıflarında okutulan müzik derslerinde yapılan düzenli çalgı ve ses eğitimi uygulamalarının, öğrencilerin müziğe ilişkin bilişsel, duyuşsal, psiko-motor davranışları, müzik yaşantısı ve benlik saygısı üzerindeki etkisi* (Yayımlanmamış doktora tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Turgut, M. F., & Baykul, Y. (2011). *Eğitimde ölçme ve değerlendirme* (3. baskı). Ankara: Pegem Akademi.

Türk Dil Kurumu [TDK] (2018). *Türk Dil Kurumu büyük sözlüğü*. http://www.tdk.gov.tr/index.php adresinden alınmıştır.

Türkmen, E. F. (2009). Yeni öğretim programına uyum sürecinde müzik öğretmenlerinin yaşadığı sorunlar. S. Tarman (Ed.), *8. Ulusal Müzik Eğitimi Sempozyumu Bildiriler Kitabı* (ss. 184-193). Samsun: Ondokuz Mayıs Üniversitesi Yayınları.

Varış, A., & Cesur, D. (2012). Ortaöğretim müzik dersine yönelik başarı testinin geliştirilmesi. *Turkish Studies, 7*(4), 3189-3198.

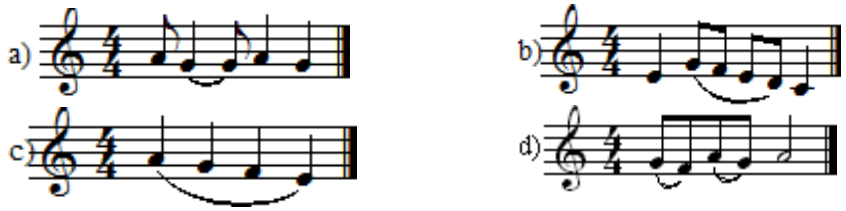
Weymuth, R. W. (1986). *The development and evaluation of a cognitive music achievement test to evaluate Missouri high school choral music students* (Unpublished doctoral dissertation). University of Miami, USA.

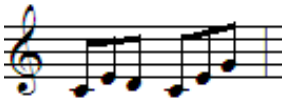
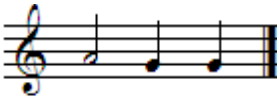
Yegül, B. U. (2014). Yapılandırmacı yaklaşıma yönelik akademik başarı testi geliştirme çalışması. T. Tuncer & Y. Çakıcı (Eds.), *9. Uluslararası Balkan eğitim ve bilim kongresi bildiriler kitabi* (ss. 352-357). Edirne: Trakya Üniversitesi Yayınları.

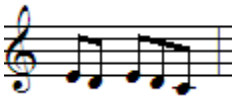
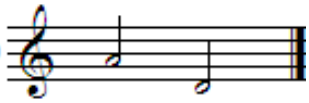
York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. *Practical Assessment, Research & Evaluation, 20*(1), 1-20.

APPENDIX-1: Musical Knowledge Test

MUSICAL KNOWLEDGE TEST	
Name and Surname:	**Class:**
Dear students, You are asked the following questions about your learning outcomes in the music lesson. Your answers to the questions will be used to evaluate your achievement. **Please answer all questions carefully. Good Luck!**	

1	**Circle the correct definition of the rhythm dot!** **a)** The point placed under the left key is called the rhythm dot. **b)** The point placed on the right of a note is called the rhythm dot. **c)** The point placed in a note is called a rhythm dot. **d)** The point placed on the two notes is called the rhythm dot.
2	**Circle the option for which rhythm dot is used correctly!** a) b) c) d) 
3	**Circle the correct option in which the task of the rhythm dot is explained!** **a)** It decreases the duration of the belonging note to half of its value. **b)** It connects the notes. **c)** The rhythm dot extends the belonging note by half of its duration. **d)** It is useless.
4	 **How many beats did the total time of the note with the rhythm dot used in the following example?** **a)** 2 beats **b)** 1 beat + half beat **c)** half beat + quarter beat **d)** 3 beats
5	**Which of the following definitions describes the tie correctly?** **a)** The bond that connects two notes of the same name is called the tie. **b)** The bond that connects two notes with different names is called the tie. **c)** The tie is a term used to link lyrics together. **d)** The bond that changes the names of the notes is called a tie.
6	**Circle the option for which the tie is used correctly!** a) b) c) d) 
7	**Circle the option in which the task of the tie is described correctly!** **a)** It extends syllables. **b)** It bonds two same named and sounded notes to each other, and the duration of the second shall be added to the first note. **c)** It decreases the duration of the note on the above or on the below half of its value. **d)** It changes the names of two different sounded notes on the above or on the below.

8	 **How many beats did the total time of the note with the tie used in the following example?** **a)** 2 beats **b)** half beat **c)** quarter beat **d)** 3 beats
9	**How does human voice occur? Circle the correct option!** **a)** Human voice occurs as a result of taking a breath. **b)** Human voice occurs as a result of breathing out. **c)** Human voice occurs through the vibration of vocal cords by breathing out and by shaping the resonance cavities. **d)** Human voice is the result of holding the breath in the lungs.
10	**Which organ <u>does not</u> help the generation of human voice?** **a)** Vocal cords **b)** Ears **c)** Sinuses **d)** Lungs
11	**In which option the importance of breath for the generation of human voice is explained correctly?** **a)** Breathing is necessary for the ears to hear. **b)** A breath is needed to understand what you are reading. **c)** Breath vibrates the vocal cords; it provides the necessary sound to speak and sing. **d)** Breathing is necessary for blood circulation.
12	**Circle the rhythm in the 6/8 compound measure!** a)  b)  c)  d) 
13	**Circle the melody in the 6/8 compound measure!** a)  b)  c)  d) 
14	 **Which of the followings is the continuation of the short melody given?** a)  b)  c)  d) 
15	**Circle the rhythm in the 5/8 asymmetric measure!** a)  b)  c)  d) 

16	**Circle the melody in the 5/8 asymmetric measure!** a)  b)  c)  d) 
17	 **Which of the followings is the continuation of the short melody given?** a)  b)  c)  d) 
18	**What is the age interval of voice breaking (mutation) during adolescence?** **a)** 4-6 **b)** 11-15 **c)** 18 and upper **d)** 9-11
19	**Why should human voice be protected during the voice breaking (mutation) period?** **a)** During this period, the vocal cords should be protected because they are sensitive. **b)** During this period, the vocal cords should be protected because they are very strong. **c)** During this period, the vocal cords should be protected because they are very healthy. **d)** During this period, the vocal cords should be protected because they are too large.
20	**Which of the following options is one of the behaviours we need to exhibit to protect our voice?** **a)** We should not shout while singing and talking. **b)** We should sing songs with very higher and lower tones to compel our voice. **c)** We should shout while talking and singing. **d)** We must eat and drink hot-cold things.